

# **ALASKA SEAT BELT OBSERVATION SURVEYS 2009**

**Prepared by**

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**For the**

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**Under contract with**

**The Alaska Highway Safety Office,  
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## EXECUTIVE SUMMARY

The Alaska Highway Safety Office (AHSO) contracted with the Alaska Injury Prevention Center (AIPC) to conduct the 2009 observational surveys of seat belt use in Alaska. The Alaska Highway Safety Office, with support from the National Highway Traffic Safety Administration (NHTSA), participates in nationwide observational surveys of occupant restraint usage on an annual basis. This following report details the results of the observational surveys of vehicles and occupants throughout Alaska.

The planning process for measuring occupant restraint usage surveys started in April, to ensure that all NHTSA standards were met in sampling, observations, and analysis. In May, AIPC hired and trained six temporary employees to act as surveyors. The surveyors received personal training for the community in which they would be conducting the observations. The recorded observations took place from June 1 – 15, 2009. The AIPC surveyors used cassette voice recorders to document their observations, a unique method introduced by AIPC in 2004 which drastically increased the number of observations. Seat belt use was recorded for drivers and front seat outboard passengers in passenger cars, trucks, SUVs, vans, as well as helmet use for motorcyclists. We observed a total of 37,647 vehicle occupants: 30,064 drivers and 7,583 outboard passengers. Thirty-seven percent (37%) of the observed vehicles were cars, 30% sport utility vehicles (SUV), 26% trucks, 8% were vans, and 3% were motorcycles. Motorcycles accounted for 936 observations.

A statistical sample of major and rural (i.e. local) roads in communities encompassing 85 percent of the state's population was selected for the surveys. Of the observed occupants, the raw data showed that 85.5 percent of the drivers and 82.6 percent of outboard passengers were wearing seat belts at the time of the observations. The official "weighted" total share of occupants wearing seat belts in Alaska in 2009 was **86.1 percent**. This is a 1.2 percentage point increase over the observed rate in 2008, and the highest rate ever observed for Alaska. We also compared rates for cars, vans, SUVs, and trucks. Eighty-nine (89%) percent of the front seat outboard "car" occupants, 88% of SUVs, 87% of vans, and 81% of truck occupants were using seat belts during these observations. Trucks, once again, had the lowest rate for any of the vehicle categories, which shows where enforcement and educational efforts should be targeted.

Alaska became a primary enforcement state on May 1, 2006, which means that a law enforcement officer can stop a vehicle if the occupants are not wearing seat belts.

## INTRODUCTION

### Background

In June 1984, the Alaska State Legislature passed a law (AS28.05.095) requiring Children ages six and under to be restrained while being transported in a motor vehicle. In addition, children under the age of four years are to be transported in a restraint that complies with federal safety standards. In February of 1989, the Legislature amended the provision to require the use of safety belts by all occupants. To be eligible for certain federal grants, states must document levels of compliance with seat belt laws, as Alaska does annually. Alaska became a primary enforcement state in May 2006.

From 1997 through 2003, the Alaska Highway Safety Office contracted with the University of Alaska's Institute of Social and Economic Research (ISER) to conduct observational surveys of seat belt use in Alaska. The National Highway Traffic Safety Administration pays for observational surveys to be completed annually in each state to determine the level of seat belt use. In 2004 - 2009, the Alaska Injury Prevention Center (AIPC) was contracted to conduct the observational surveys. The following report details the results of the observational surveys of seat belt use in Alaska in 2009.

## DATA COLLECTION

### Survey Design

AIPC used a population density, probability-based design to estimate the seat belt usage rates for the state of Alaska. All of the observations were completed in the month of June 2009. Our study design complies with criteria published on the *Electronic Code of Federal Regulations* website, which were updated as of June 24, 2003. The criteria can be found in the *Federal Register* 23 CFR, Chapter III, Subchapter D, Part 1340 – *Uniform Criteria for State Observational Surveys of Seat belt Use*.

Primary Sampling Units (PSU) were selected from boroughs in Alaska which totaled more than 85 percent of the state's population and had an even greater percentage of the controlled intersections. All of the boroughs within the 85 percent demographic guideline had a probability of being selected as a PSU, which was proportional to their population and their total traffic volume. Within the boroughs selected, 264 observation sites were chosen in a stratified random sample design. This was done to accurately reflect the Alaska Department of Transportation & Public Facilities (AK DOT&PF) traffic estimates at controlled intersections with high, medium, and low traffic volume roads. The number of sample sites per city was determined by a proportional percentage of the state's average annual daily vehicle volume and by the relative population density of that community. Stratification for traffic volume differences was completed during the design phase by dividing the total traffic volume in each community into three equal strata by traffic volume. Next, we chose an equal number of randomly selected sites

from high, from medium, and from low traffic volume intersections. This process provided a greater percentage of sample sites in small communities than in large communities.

The Alaska DOT&PF supplied AIPC with a list of all controlled intersections in the state and their average daily traffic volume (latest data from 2008). From this list, we used a random number generator program to select the specific intersections needed for inclusion in our sample for each community. Once the intersections were identified, AIPC developed observer schedules by randomly assigning the intersections to morning or afternoon shifts, then systematically alternating the direction of traffic flow (i.e., north, south, east, or west) as much as practical for the physical layout of the streets. The survey sites within each community were grouped to reduce driving distances but the first site for each shift was randomly selected.

Trained observers recorded shoulder belt use by drivers and outboard passengers at selected intersections, for forty-five minute periods, between 7:30 a.m. and 9:00 p.m. in June 2009.

### **Training**

The AIPC Executive Director individually trained each observer in the classroom and in the field. A training manual was developed (Appendix B) and given to each observer. The classroom training covered each section of the manual and required feedback from the observer to ensure understanding of the methodology. Three of the six observers had been hired to conduct these observations in previous years. Following the classroom training, observers practiced recording restraint use while under direct supervision of the trainer. Several sites were visited to make sure the observer understood how to read the map, determine the direction of traffic to be measured and where to stand. Observers were trained in their own communities in order to make the instruction more pertinent.

Each observer was given a work schedule which included the days, times, locations, and traffic directions to be observed. A detailed map for each site was also included to reduce confusion. Observers were encouraged to call with any discrepancies or questions, and were given instructions on what to do if a site could not be observed. Unannounced visits were made to some of the sites to insure that the observers were at the correct location at the right time.

This was the sixth year for using voice recorders to document seat belt usage rates. This method eliminated the need to look down while writing, and the problems associated with writing in inclement weather. The downside of using recorders was that observations could be made too quickly for computer entry. We overcame this problem by hiring a transcriptionist who could slow down the tape when needed.

### **Observation Methodology**

Each observer recorded seat belt use at predetermined intersections for eight, forty-five minute periods per shift. The shifts were either "AM", from 7:30am to 3:30pm or "PM",

from 1pm to 9pm. Daily observation sites were grouped geographically to facilitate moving from one site to the next within the 15-minute transition time allotted.

Observers used a micro-cassette recorder with 90 minute tapes. Numerous observation periods could be recorded on a single micro-cassette because the observers paused the tape between actual observations. This procedure also facilitated the transcription process. The observers recorded information on each non-commercial, non-emergency passenger vehicle at controlled intersections. Observers were instructed on what to do if traffic was moving too quickly to record information on each vehicle. Finally, observers recorded any comments they felt might be helpful when interpreting the data.

## **DATA ANALYSIS**

### **Weighting**

Observations at each site were weighted according to the site's final probability of selection. To accomplish this step, we used average annual daily traffic volumes for all of the boroughs in the sample pool and then calculated traffic volumes for each stratum within the borough. We were then able to calculate the sites' probability of selection and weight the observations accordingly, using *SPSS 15*.

To select the number of observation sites per community, we took into account possible disproportionate population and traffic volumes by over-sampling the less populated boroughs during the design phase of the study. The Raosoft Sample Size Calculator (found at [www.raosoft.com/samplesize.html](http://www.raosoft.com/samplesize.html)) was used to determine the number of intersections that needed to be sampled in each community, based on the margin of error limitations and the total number of intersections available. The number of sample sites required in each borough was then divided evenly among the three strata for random selection.

Intersections were assigned to the observers with respect to time of day, day of week, and average annual daily traffic volume. An equal number of randomly selected survey sites from low, medium, and high traffic volume intersections were selected for sampling within each community.

After data collection was complete, AIPC analyzed the data using *SPSS 15*. *SPSS* is a program for managing data and performing statistical analyses and it is particularly adept at manipulating data sets with many cases and variables.

### **Results**

The surveyors observed a total of 37,647 vehicle occupants (30,064 drivers and 7,583 outboard passengers) in 2009. Thirty-seven percent (37%) of the observed vehicles were cars, 30% sport utility vehicles (SUV), 26% trucks, 8% were vans, and 3% were motorcycles.

During the 2009 observation period in Alaska, the weighted data showed that 86.6 percent of the drivers and 84.1 percent of the outboard passengers were wearing seat belts. The total proportion of occupants wearing seat belts was **86.1 percent**. Trucks were the third largest vehicle category but had the lowest usage rate at 80.6%. There were 895 motorcycles (936 riders) in the sample, with 72.8% of the drivers and 97.6% of the passengers wearing helmets. The Alaska State law requires helmets for passengers but not for drivers of motorcycles.

The following graph shows the trend line of seat belt use in Alaska from 1999 – 2009.

### % Seat Belt Use in Alaska 1999 - 2009

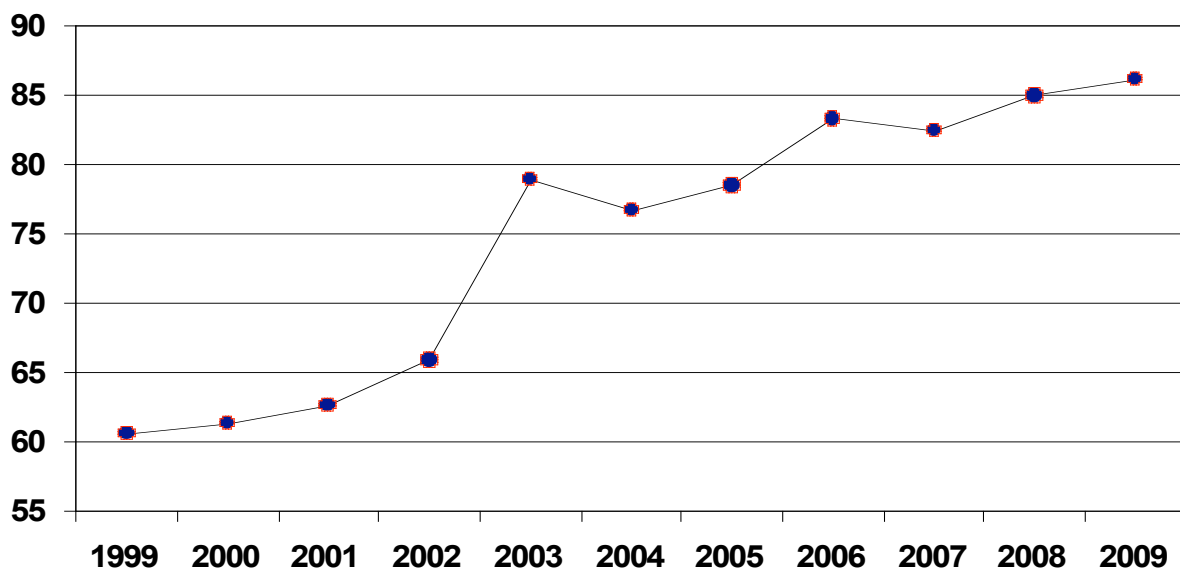


Table 1 shows the percent of drivers, passengers, and combined occupants who were wearing seat belts and the change across study years (weighted).

**Table 1: Seat belt Use in Alaska, 2003-2009**

		<b>2009</b>	<b>2008</b>	<b>2007</b>	<b>2006</b>	<b>2005</b>	<b>2004</b>	<b>2003</b>
All Vehicles	Share of Drivers Belted	0.866	0.859	0.828	0.834	0.785	0.772	0.797
	Share of Passengers Belted	0.841	0.812	0.810	0.825	0.779	0.750	0.762
	Share of Occupants Belted	<b>0.861</b>	0.849	0.824	0.832	0.784	0.767	0.789
Cars	Share of Drivers Belted	0.888	0.878	0.856	0.842	0.797	0.798	0.826
	Share of Passengers Belted	0.854	0.801	0.828	0.829	0.777	0.756	0.790
	Share of Occupants Belted	<b>0.882</b>	<b>0.862</b>	<b>0.850</b>	<b>0.840</b>	0.793	0.789	0.818
Vans	Share of Drivers Belted	0.874	0.898	0.859	0.887	0.838	0.810	
	Share of Passengers Belted	0.879	0.864	0.841	0.881	0.837	0.800	
	Share of Occupants Belted	<b>0.876</b>	<b>0.889</b>	<b>0.854</b>	<b>0.885</b>	0.838	0.808	
SUVs	Share of Drivers Belted	0.883	0.883	0.854	0.869	0.827	0.812	
	Share of Passengers Belted	0.858	0.844	0.834	0.853	0.830	0.786	
	Share of Occupants Belted	<b>0.879</b>	<b>0.874</b>	<b>0.850</b>	<b>0.865</b>	0.827	0.806	
Trucks	Share of Drivers Belted	0.813	0.792	0.753	0.770	0.716	0.689	0.707
	Share of Passengers Belted	0.782	0.764	0.742	0.761	0.706	0.685	0.670
	Share of Occupants Belted	<b>0.806</b>	<b>0.787</b>	<b>0.750</b>	<b>0.768</b>	0.714	0.689	0.699

According to federal guidelines, the reliability of the survey results should be within the 95 percent confidence interval. We calculated a **standard error of 0.002**. The data were analyzed and found to be well within a confidence interval of 95% as required by NHTSA guidelines.

### **Regional Differences**

It is important to note that survey results reflect restraint use by the driver and outboard passenger in a probability sample of vehicles drawn from the most populated areas of Alaska. Included in the potential sample sites were the Municipality of Anchorage, the Matanuska-Susitna Borough, the Juneau Borough, the Kenai Peninsula Borough, the Fairbanks North Star Borough, as well as the boroughs of Kodiak, Ketchikan, and Sitka, which were not selected, in the random sample.

Table 2 presents the share of drivers, passengers, and occupants who were wearing seat belts, sorted by region and the changes across years. The table presents data from 2003 through 2009.

**Table 2: Seat belt Use by Region**

<b>All Vehicles</b>		<b>2009</b>	<b>2008</b>	<b>2007</b>	<b>2006</b>	<b>2005</b>	<b>2004</b>	<b>2003</b>
All Regions	Drivers Belted	0.866	0.859	0.828	0.837	0.785	0.772	0.797
	Passengers Belted	0.841	0.812	0.810	0.832	0.779	0.750	0.762
	Share of Occupants	<b>0.861</b>	0.849	0.824	0.832	0.784	0.767	0.789
Anchorage	Drivers Belted	0.875	0.874	0.839	0.848	0.821	0.812	0.822
	Passengers Belted	0.853	0.828	0.808	0.838	0.781	0.775	0.797
	Share of Occupants	<b>0.871</b>	0.865	0.833	0.846	0.812	0.804	0.817
Fairbanks	Drivers Belted	0.855	0.841	0.822	0.820	0.738	0.692	0.772
	Passengers Belted	0.835	0.783	0.797	0.755	0.675	0.658	0.737
	Share of Occupants	<b>0.851</b>	0.828	0.817	0.807	0.724	0.684	0.764
Juneau	Drivers Belted	0.796	0.816	0.770	0.758	0.839	0.724	0.716
	Passengers Belted	0.769	0.814	0.770	0.684	0.813	0.750	0.689
	Share of Occupants	<b>0.793</b>	0.815	0.770	0.745	0.833	0.730	0.709
Kenai/Soldotna	Drivers Belted	0.849	0.756	0.729	0.785	0.770	0.765	0.687
	Passengers Belted	0.840	0.709	0.717	0.819	0.797	0.817	0.588
	Share of Occupants	<b>0.847</b>	0.745	0.726	0.793	0.777	0.778	0.669
MatSu	Drivers Belted	0.864	0.837	0.803	0.784	0.687	0.767	0.670
	Passengers Belted	0.791	0.795	0.893	0.890	0.803	0.735	0.621
	Share of Occupants	<b>0.849</b>	0.826	0.826	0.809	0.716	0.759	0.658

Table 2 shows seat belt use in Alaska has risen 9 percent from 2003 to 2009. The greatest annual increase was from 2002 to 2003, when seat belt use by all occupants rose by 20 percent. In the 2009 surveys, there were slight increases observed in Anchorage, Fairbanks, and MatSu, while a huge increase was observed in the Kenai/Soldotna area. Juneau was the only area showing a decrease in seat belt usage, especially for passengers. Anchorage had the highest seat belt usage of any area in the state since the observational surveys began in 1997.



Table 3 presents the vehicles and the percentage of seat belt use by drivers and passengers in each borough sampled in 2009.

**Table 3: Occupant Restraint Use (%) by Vehicle Type & Borough - 2009**

	<b>Area Wide</b>	<b>Anchorage</b>	<b>Fairbanks</b>	<b>Juneau</b>	<b>Kenai</b>	<b>Mat-Su</b>
<b>ALL VEHICLES</b>						
Drivers Belted	86.6	87.5	85.5	79.6	84.9	86.4
Passengers Belted	84.0	85.3	83.5	76.9	84.0	79.1
% of Occupants Belted	<b>86.1%</b>	<b>87.1%</b>	<b>85.1%</b>	<b>79.3%</b>	<b>84.7%</b>	<b>84.9%</b>
<b>CARS</b>						
Drivers Belted	88.8	89.4	88.7	83.9	87.0	88.3
Passengers Belted	85.4	87.0	84.4	77.2	82.6	80.7
% of Occupants Belted	<b>88.2%</b>	<b>88.9%</b>	<b>88.0%</b>	<b>82.7%</b>	<b>86.1%</b>	<b>86.8%</b>
<b>TRUCKS</b>						
Drivers Belted	81.3	83.9	77.2	67.3	81.6	80.4
Passengers Belted	78.2	79.0	77.7	71.6	83.2	73.2
% of Occupants Belted	<b>80.6%</b>	<b>82.9%</b>	<b>77.3%</b>	<b>67.9%</b>	<b>81.9%</b>	<b>79.1%</b>
<b>SUVS</b>						
Drivers Belted	88.3	88.1	90.0	82.6	86.3	91.3
Passengers Belted	85.8	86.6	86.0	81.1	86.4	80.1
% of Occupants Belted	<b>87.9%</b>	<b>87.8%</b>	<b>89.2%</b>	<b>82.2%</b>	<b>86.4%</b>	<b>88.9%</b>
<b>VANS</b>						
Drivers Belted	87.4	87.2	89.8	82.6	87.0	88.7
Passengers Belted	87.9	88.7	89.4	73.0	84.6	87.8
% of Occupants Belted	<b>87.6%</b>	<b>87.6%</b>	<b>89.8%</b>	<b>82.0%</b>	<b>86.3%</b>	<b>88.4%</b>
<b>MOTORCYCLES</b>						
Driver Helmeted	72.8	77.6	67.9	64.3	69.2	68.6
Passenger Helmeted	97.6	95.2	100	100	100	100
% of riders Helmeted	<b>73.9%</b>	<b>78.3%</b>	<b>70%</b>	<b>64.6%</b>	<b>69.8%</b>	<b>68.8%</b>

### Cell Phone Use

To establish a baseline, we asked the surveyors in all communities to document cell phone use for the driver of the vehicle. The observed cell phone usage rate for drivers was 5.6% in the 2009 Alaska NOPUS surveys. The observed usage rates by borough were: Juneau 7.0%, MatSu 6.9%, Kenai/Soldotna 6.6%, Anchorage 5.6%, and Fairbanks 4.2%.

## **Conclusion**

The overall observed seat belt usage rate for Alaska increased to its highest level to date in 2009. This rate included good increases in some areas and declines in other areas. The sampling methods and statistical analyses used in this survey yielded results well within the parameters required by the Alaska Highway Safety Office and the National Highway Traffic Safety Administration. Van occupants have been the reigning leaders for seat belt usage, but were surpassed by SUVs and cars this year. The lowest seat belt usage rates by vehicle were for truck occupants, especially passengers. With only a couple of exceptions, passenger usage rates were lower than that of the drivers. Truck occupants had a usage rate that was about nine percentage points lower than the other types of vehicles. There was an increase in every borough surveyed this year, except for Juneau. The obvious finding for the motorcycle rider observations was that passengers were far more likely to be helmeted than the drivers were (Alaska law requires helmet use for passengers but not for drivers).

Future interventions may want to target passengers in general, truck drivers and passengers in particular, and occupants in the Juneau area.

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